



SPRING OATS For Illinois

Variety Trials 1946-1950

Disease Hazards 1950

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SPRING OATS FOR ILLINOIS

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HOW WELL spring oat varieties performed in 1946-1950 field trials is shown in Tables 1 to 4 of this circular. The purpose is to help growers select varieties best suited for their areas.

Varieties were tested at four locations — northern, central, southern, and extreme southern Illinois. They are grouped in the tables according to the number of years grown. Clinton is included in each group to furnish a basis of comparison with the other varieties. For a more nearly complete description of varieties see mimeograph AG1473.^a

Because of the increasing importance of crown rust Race 45 the reactions under greenhouse conditions of a number of old and new varieties are shown in Table 5.

Recommended Varieties

On the basis of their performance for at least three years, the following varieties are recommended for Illinois and listed in order of their preference:

Northern Illinois

Clinton^b
Marion
Bonda
Andrew
Nemaha

Central Illinois

Clinton^b
Andrew
Mindo
Bonda
Marion

Southern Illinois

Benton
Marion
Columbia
Andrew

Recently Named Varieties

La Salle C.I. 5628 is a recently named selection from a cross between Clinton and Marion made at the Illinois Station. In four years of testing under the designation Illinois 43-262, the variety has made a very good yield record. It is also tolerant to Race 45 of crown or leaf

^a AG1473, "Oat Varieties Tested in Field Plots in Illinois 1950," may be obtained from the Agronomy Department.

^b Includes all selections from Clinton: 11, 59, and Reselect.

rust while Clinton and most other Bond derivatives are susceptible. In test weight and straw strength La Salle ranks below Clinton.

Preliminary seed increase will begin in 1951 and by 1953 there should be enough seed to meet all demands.

Missouri O-205 C.I. 4988 was released recently by the Missouri Station. It resulted from a cross of Columbia \times Victoria-Richland. In preliminary tests the variety appears adapted to Illinois. Resistance to Race 45 of crown rust is an important characteristic of this variety. The seeds, which are similar to those of Columbia in appearance, have a high bushel weight.

Missouri O-205 is still in the increase stage and will not be available for 1951 planting.

Branch C.I. 5013, a recently named variety developed at the Wisconsin Experiment Station, shows no promise for Illinois. The variety is extremely late in maturing and at present is recommended principally for the northern areas of Wisconsin.

Disease Situation

In 1950, for the first time since the introduction of the Bond type oats into Illinois, **Race 45 of crown rust** caused considerable loss to the oat crop. The amount of infection (from field to field) varied considerably, but the over-all loss as estimated by G. H. Boewe, of the Natural History Survey, was 10 percent.

Only a trace of **stem rust** (mostly Race 7) was observed. "**Grey spot**" (cause unknown) was in evidence, but was not nearly so prevalent as in 1949. Very little **Septoria culm rot**, **anthracnose**, or other of the so-called minor diseases was observed.

Table 1. — NORTHERN ILLINOIS (Mt. Morris 1946-1948; DeKalb 1949-1950): Results of Tests With Spring Oat Varieties

Rank	Variety	C.I. No. ^a	Yield above (+) or below (—) average of all varieties ^b	Average yield per acre	Yield in 1950	Test weight per bushel	Plants erect at harvest	Height of plants	Groats
<i>Grown 5 years, 1946-1950</i>			<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>lb.</i>	<i>perct.</i>	<i>in.</i>	<i>perct.</i>
1	Clinton.....	3971	+7.9	73.6	49.7	34.8	91.6	36.3	72.5
2	Marion.....	3247	+6.6	72.3	55.0	33.5	72.4	38.5	72.1
3	Bonda.....	4329	+2.3	68.0	49.7	36.1	85.4	39.1	70.2
4	Columbia.....	2820	+1.8	67.5	37.5	33.1	48.7	37.8	72.8
5	Benton.....	3910	+ .2	65.9	44.6	35.1	76.6	38.9	73.2
6	Mindo.....	4328	-4.3	61.4	48.4	34.1	62.1	33.7	69.6
7	Sixty-Day.....	.....	-6.0	59.7	43.1	30.3	39.9	36.1	72.7
Difference necessary for significance.....			.....	7.5	6.3	.....	.....	.....	.....
<i>Grown 4 years, 1947-1950</i>									
1	La Salle.....	5628	+7.9	69.8	51.0	32.5	75.9	34.5	73.1
2	Clinton.....	3971	+5.1	67.0	49.7	34.7	89.8	35.5	72.9
3	Clinton Selection 11.....	4606	+4.3	66.2	52.4	34.7	88.7	34.4	73.6
4	Andrew.....	4170	+3.1	65.0	47.8	34.2	75.1	35.5	73.6
5	Shelby.....	4372	+ .1	62.0	45.8	34.8	74.7	39.0	69.9
Difference necessary for significance.....			.....	8.5	6.3	.....	.....	.....	.....
<i>Grown 3 years, 1948-1950</i>									
1	Zephyr.....	4800	+5.5	55.7	40.3	32.3	79.6	34.7	64.2
2	Clinton.....	3971	+4.1	54.3	49.7	33.9	88.4	32.6	72.3
3	Advance.....	3845	+1.8	52.0	46.9	34.4	61.3	36.9	71.3
4	Nemaha.....	4301	+1.1	51.3	43.8	23.6	61.7	30.6	67.8
5	Beaver.....	4521	+ .6	50.8	50.5	31.4	82.9	37.0	69.8
6	Cherokee.....	3846	-4.3	45.9	42.8	34.0	54.2	30.6	70.2
Difference necessary for significance.....			.....	9.5	6.3	.....	.....	.....	.....
<i>Grown 2 years, 1949-1950</i>									
1	Clinton.....	3971	+3.4	43.6	49.7	33.9	88.8	27.9	72.0
2	Colo.....	3972	+1.0	41.2	47.5	33.4	56.7	32.3	70.3
3	Clinton X Columbia 44-264-72.....	.....	- .6	39.6	44.6	33.8	67.5	27.3	67.0
4	Benton X Marion 43-H25.....	.....	-1.7	38.5	47.8	34.2	81.9	28.9	71.3
5	Clinton X Columbia 44-266-28.....	.....	-5.8	34.4	42.4	33.3	56.3	28.5	71.3
Difference necessary for significance.....			.....	3.8	6.3	.....	.....	.....	.....
<i>Grown in 1950 only</i>									
1	Clinton.....	3971	+3.7	49.7	49.7	35.5	91.3	27.3	71.0
2	Clinton X Columbia 43-283.....	.....	+3.3	49.3	49.3	33.0	28.8	29.5	67.5
3	Clinton X Columbia 43-271.....	.....	-2.4	43.6	43.6	35.0	7.5	28.8	71.5
4	Michigan (Bond X Anthony).....	5298	-5.5	40.5	40.5	35.8	83.8	29.3	70.5
5	Branch.....	5013	-5.9	40.1	40.1	35.0	65.0	29.5	65.5
Difference necessary for significance.....			.....	6.3	6.3	.....	.....	.....	.....

^a Accession number of the Division of Cereal Crops and Diseases, U. S. Department of Agriculture.

^b Each variety has been compared with all varieties grown the same years.

^c Tested under the designation Illinois 43-262.

Table 2. — CENTRAL ILLINOIS (Urbana): Results of Tests With Spring Oat Varieties

Rank	Variety	C.I. No. ^a	Yield above (+) or below (−) average of all varieties ^b	Average yield per acre	Yield in 1950	Date headed	Test weight per bushel	Plants erect at harvest	Height of plants	Groats
<i>Grown 5 years, 1946-1950</i>			<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>June</i>	<i>lb.</i>	<i>perct.</i>	<i>in.</i>	<i>perct.</i>
1	Mindo.....	4328	+6.2	68.2	49.6	12	34.0	74.2	34.6	71.5
2	Clinton.....	3971	+2.3	64.3	49.9	17	33.3	92.7	35.7	73.5
3	Marion.....	3247	+2.0	64.0	47.9	14	33.3	67.5	40.1	76.1
4	Bonda.....	4329	−.2	61.8	41.3	14	34.9	77.9	40.9	70.7
5	Columbia.....	2820	−2.9	59.1	41.9	11	34.0	65.2	38.0	72.9
6	Sixty-Day.....	.....	−4.1	57.9	44.7	11	31.1	58.9	37.0	74.5
7	Benton.....	3910	−4.7	57.3	37.2	15	34.1	76.3	39.8	76.2
Difference necessary for significance.....			.....	2.8	3.9	..	.....	.....	.....	.....
<i>Grown 4 years, 1947-1950</i>										
1	Andrew.....	4170	+8.7	68.3	47.6	11	31.9	67.4	37.6	73.9
2	La Salle.....	5628	+6.4	66.0	49.6	13	32.4	77.5	36.4	73.6
3	Columbia X Clinton 43-283.....	.....	+4.9	64.5	43.9	16	33.7	78.4	37.7	71.1
4	Clinton Selection 11.....	4606	+3.1	62.7	48.6	16	34.1	87.4	35.8	74.5
5	Clinton.....	3971	+2.8	62.4	49.9	17	32.7	91.0	36.0	73.6
6	Shelby.....	4372	+ .8	60.4	49.3	18	31.6	76.3	40.5	70.3
Difference necessary for significance.....			.....	3.4	3.9	..	.....	.....	.....	.....
<i>Grown 3 years, 1948-1950</i>										
1	Beaver.....	4521	+6.2	58.5	53.6	14	29.1	72.0	39.3	71.2
2	Zephyr.....	4800	+ .3	52.6	34.5	17	29.8	71.1	37.2	68.5
3	Clinton.....	3971	+ .1	52.4	49.9	15	32.1	88.9	33.7	73.5
4	Nemaha.....	4301	−3.1	49.2	47.2	11	32.7	69.2	32.3	72.3
5	Cherokee.....	3846	−4.3	48.0	47.7	11	32.6	61.8	32.7	71.3
Difference necessary for significance.....			.....	4.1	3.9	..	.....	.....	.....	.....
<i>Grown 2 years, 1949-1950</i>										
1	Clinton X Columbia 44-264-72.....	.....	+6.2	51.5	49.1	7	31.0	73.8	31.3	68.5
2	Clinton.....	3971	+1.7	47.0	49.9	12	31.6	92.2	32.5	73.0
3	Michigan (Bond X Anthony).....	5298	− .8	44.5	39.5	10	33.3	86.3	36.0	69.8
4	Clinton X Columbia 44-266-28.....	.....	−1.7	43.6	45.9	7	33.4	73.8	38.5	72.3
5	Branch.....	5013	−2.2	43.1	43.5	17	28.4	86.3	35.3	65.3
6	Missouri O-200.....	4626	−2.3	43.0	47.9	8	33.4	70.0	35.4	71.3
7	Colo.....	3972	−3.5	41.8	45.4	10	31.3	87.5	37.5	71.0
Difference necessary for significance.....			.....	2.9	3.9	..	.....	.....	.....	.....
<i>Grown in 1950 only</i>										
1	Clinton X Marion..	5641	+5.3	51.5	51.5	16	33.3	85.0	30.0	69.0
2	Clinton.....	3971	+3.7	49.9	49.9	16	33.6	93.3	29.0	74.0
3	Missouri O-205.....	4988	+1.3	47.5	47.5	13	32.9	73.7	31.0	71.5
Difference necessary for significance.....			.....	3.9	3.9	..	.....	.....	.....	.....

^a Accession number of the Division of Cereal Crops and Diseases, U. S. Department of Agriculture.^b Each variety has been compared with all varieties grown the same years.^c Tested under the designation Illinois 43-262.

Table 3. — SOUTHERN ILLINOIS (Alhambra 1945, '46, '48, '49; Brownstown 1950): Results of Tests With Spring Oat Varieties

Rank	Variety	C.I. No. ^a	Yield above (+) or below (−) average of all varieties ^b	Average yield per acre	Yield in 1950	Test weight per bushel	Plants erect at harvest	Height of plants	Groats
<i>Grown 5 years, 1945, '46, '48, '49, '50</i>			<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>lb.</i>	<i>perct.</i>	<i>in.</i>	<i>perct.</i>
1	Benton.....	3910	+3.5	36.9	45.9	31.5	72.8	35.4	70.5
2	Marion.....	3247	+ .8	34.2	52.1	28.5	69.6	33.0	69.5
3	Columbia.....	2820	+ .5	33.9	49.0	29.5	51.3	32.4	66.5
4	Clinton.....	3971	+ .3	33.7	42.9	29.2	76.7	30.5	66.3
5	Sixty-Day.....	.....	−2.3	31.1	45.6	25.7	59.6	31.4	68.5
Difference necessary for significance.....			.....	2.0	4.2	.....	.....	.....	.....
<i>Grown 3 years, 1948-1950</i>									
1	Columbia X Clinton 43-283.....	.....	+3.7	46.0	47.0	28.9	58.9	32.5	64.7
2	La Salle.....	5628	+3.4	45.7	50.4	27.9	57.7	30.3	69.5
3	Andrew.....	4170	+3.3	45.6	52.7	29.4	61.8	31.6	69.8
4	Mindo.....	4328	+1.2	43.5	47.0	28.6	51.5	29.7	63.8
5	Nemaha.....	4301	+ .5	42.8	44.2	29.7	58.2	29.6	69.5
6	Clinton.....	3971	−1.9	40.4	42.9	28.2	61.1	29.9	66.0
7	Clinton Selection 11.....	4606	−2.1	40.2	42.9	27.7	54.8	29.4	66.4
8	Cherokee.....	3846	−2.6	39.7	42.5	28.8	52.6	29.8	68.2
Difference necessary for significance.....			.....	2.7	4.2	.....	.....	.....	.....
<i>Grown 2 years, 1949-1950</i>									
1	Missouri O-200.....	4626	+ .3	41.9	45.9	28.2	66.1	32.3	67.0
2	Bonda.....	4329	− .9	40.7	45.3	28.3	85.1	34.9	60.8
3	Clinton.....	3971	−2.1	39.5	42.9	26.2	85.4	30.0	63.5
4	Colo.....	3972	−3.4	38.2	46.3	25.5	70.9	33.6	66.1
Difference necessary for significance.....			.....	2.8	4.2	.....	.....	.....	.....
<i>Grown in 1950 only</i>									
1	Benton X Marion 43-H25.....	.....	+5.4	52.4	52.4	29.1	66.3	31.0	70.0
2	Clinton X Columbia 44-264-72.....	.....	+1.3	48.3	48.3	28.7	78.3	28.0	70.5
2	Columbia X Clinton 43-271.....	.....	+1.3	48.3	48.3	29.3	50.0	30.0	70.0
4	Missouri O-205.....	4988	− .7	46.3	46.3	29.6	63.8	30.0	70.0
5	Clinton X Columbia 44-266-28.....	.....	−2.1	44.9	44.9	30.0	60.0	29.0	72.0
6	Clinton.....	3971	−4.1	42.9	42.9	28.3	78.8	28.0	61.5
Difference necessary for significance.....			.....	4.2	4.2	.....	.....	.....	.....

^a Accession number of the Division of Cereal Crops and Diseases, U. S. Department of Agriculture.

^b Each variety has been compared with all varieties grown the same years.

^c Tested under the designation Illinois 43-262.

Table 4. — EXTREME SOUTHERN ILLINOIS (Dixon Springs Experiment Station): Results of Tests With Spring Oat Varieties

Rank	Variety	C.I. No.*	Yield above (+) or below (—) average of all varieties ^b	Average yield per acre	Yield in 1950	Test weight per bushel
<i>Grown 4 years, 1947-1950</i>			<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>lb.</i>
1	Marion.....	3247	+3.6	26.9	21.0	27.6
2	Clinton.....	3971	+1.4	24.7	10.9	25.4
3	Benton.....	3910	+ .4	23.7	14.4	27.5
4	Columbia.....	2820	-1.6	21.7	15.6	26.0
	Difference necessary for significance.....		.....	.....	3.3	.....
<i>Grown 3 years, 1948-1950</i>						
1	Andrew.....	4170	+ .9	20.1	18.6	27.5
2	Clinton.....	3971	-1.4	17.8	10.9	24.7
2	Clinton Selection 11.....	4606	-1.4	17.8	12.3	26.0
	Difference necessary for significance.....		.....	1.9	3.3	.....
<i>Grown 2 years, 1949-1950</i>						
1	Nemaha.....	4301	+1.8	20.4	20.2	25.4
2	La Salle ^c	5628	-1.2	17.4	12.9	21.8
3	Clinton.....	3971	-2.8	15.8	10.9	21.7
	Difference necessary for significance.....		.....	2.3	3.3	.....
<i>Grown in 1950 only</i>						
1	Missouri O-205.....	4988	+6.8	23.7	23.7	24.6
2	Missouri O-200.....	4626	+1.1	18.0	18.0	22.1
3	Columbia X Clinton 43-271.....		+ .9	17.8	17.8	22.2
4	Clinton.....	3971	-6.0	10.9	10.9	18.6
	Difference necessary for significance.....		.....	3.3	3.3	.....

* Accession number of the Division of Cereal Crops and Diseases, U. S. Department of Agriculture.

^b Each variety has been compared with all varieties grown the same years.^c Tested under the designation Illinois 43-262.

Table 5.—Reaction of a Number of Named Oat Varieties and Experimental Hybrids to Crown (Leaf) Rust Race 45 Under Greenhouse Conditions^a

Variety	C.I. No.	Reaction to Race 45	Variety	C.I. No.	Reaction to Race 45
Named varieties					
Abegweit.....		Intermediate	Larain.....		Susceptible
Advance.....	3845	Intermediate	La Salle.....	5628	Intermediate (T)
Ajax.....	4157	Intermediate	Marion.....	3247	Intermediate (T)
Andrew.....	4170	Intermediate (T) ^b	Mindo.....	4328	Susceptible
Beaver.....	4521	Intermediate (T)	Missouri O-200.....	4626	Susceptible
Benton.....	3910	Intermediate (T)	Missouri O-205.....	4988	Resistant
Bonda.....	4329	Susceptible	Mohawk.....	4327	Susceptible
Branch.....	5013	Resistant	Nemaha.....	4301	Susceptible (T)
Cherokee.....	3846	Susceptible	Richland.....	787	Susceptible
Clinton 11.....	4606	Susceptible	Roxton.....		Intermediate
Clinton 59.....	4259	Susceptible	Sac.....	3907	Susceptible
Clinton Reselect.....	4997	Susceptible	Shelby.....	4372	Susceptible
Colo.....	3972	Susceptible	Sixty-Day.....		Intermediate to Susceptible
Columbia.....	2820	Susceptible (T)	Tama.....	3502	Intermediate to Resistant
Fortune.....		Susceptible	Zephyr.....	4800	Susceptible
Garry.....		Resistant to Intermediate			
Illinois experimental hybrids					
Clinton × Columbia 44-264-72.....		Susceptible	Columbia × Clinton 43-283.....		Intermediate
Benton × Marion 43-H25.....		Intermediate (T)	Columbia × Clinton 43-271.....		Intermediate
Clinton × Columbia 44-226-28.....		Intermediate to Susceptible			

^a Reaction under field conditions will be about the same as under greenhouse conditions, except that the infection may not be quite so intense in the field.

^b Tolerant. The variety will rust, but the yield and test weight are not greatly reduced.

^c Tested under the designation Illinois 43-262.